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ABSTRACT

Two separate studies were conducted to ascertain the effect of computer-based resource guides on teachers' curriculum planning abilities and on their classroom behavior. In the first study 36 primary grade teachers from 20 schools, divided into experimental and control groups, were asked to complete data sheets describing their students' characteristics and the objectives they wished to achieve in a unit on "transportation." The control group received a resource guide which the computer had tailored to their particular students. Results indicated that teachers using a computer-based guide exhibited clearer ability to construct a teaching unit than teachers using a standard guide. The second study used the same procedure for distributing resource guides to 19 high school social studies teachers and 19 third grade teachers in 11 schools. Pre- and post-unit observations of teacher behavior showed that the experimental group exhibited significantly more behaviors related to individualizing instruction than the control group. It was also noted that within the experimental group, the high school teachers' behavior changed more than that of the elementary school teachers. (RT)

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A SUMMARY OF RESEARCH RELATED TO TEACHER BEHAVIOR RESULTING FROM THE USE OF COMPUTER ASSISTED PLANNING

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A SUMMARY OF RESEARCH RELATED TO TEACHER BEHAVIOR RESULTING FROM THE USE OF COMPUTER ASSISTED PLANNING

By Thomas J. Clayback

INTRODUCTION:

One of the basic goals of curriculum planning is the improvement of instruction. This improvement of instruction hinges on the ability of professional classroom teachers to make the right decision at the right time in planning a teaching-learning situation for individual children. John Goodlad writes:

> The right decision at the right moment is the essence of good teaching. Right decisions are those that time learning perfectly for the individiaul student. A series of such decisions moves the student forward at an optimum pace. Obviously, such timing and pacing are no more accidental than is the perfect catch by the professional out-fielder. They are, indeed, complex but they can also be acquired. They are attainable only through the dedicated application of a reasonable amount of intelligence, especially in planning. Acquisition of teaching lore is no guarantee of good timing and pacing in teaching, but good teaching is not possible without it.[1]

The following studies indicate some areas in which teacher decision-making has been enhanced through the use of Computer Assisted Planning.

Using a Resource Guide To Preplan a Unit of Instruction[2]

PROBLEM:

Unit teaching, popular among educators in theory, is not practiced widely in the elementary grades. A number of factors appear to inhibit the unit approach. These include: (1) the complexity of the task of preparing a resource unit, (2) the unavailability of adequate numbers of up-to-date resource units, (3) the lack of time in which to prepare teaching units, and (4) the skill in decision-making required of teachers in preplanning.

The purpose of the study was to seek answers to three questions:

1. Will there be a difference in the time spent by teachers using a resource guide, and those not using a Resource Guide in preplanning a teaching unit?

2. Will there be a difference in observable classroom behavior between teachers who used a Resource Guide, and those who did not use a Resource Guide?

3. To what extent do preplanned teaching units differ among teachers using a Resource Guide and those not using a Resource Guide?

This study explored the use of Computer Assisted Planning

in preplanning a teaching unit. Although electronic computers have been applied in many areas of education, they had not previously been used in the field of curriculum planning. This initial investigation sought to determine if computers could assist elementary classroom teachers in unit planning.

PROCEDURE:

Thirty-six primary grade teachers in 20 selected schools in Western New York were assigned to either an experimental or a control group.

As part of the study each teacher completed data sheets describing characteristic variables for each of her pupils, and selected the objectives she wished to achieve with a "Transportation" Resource Unit.

Prior to the preplanning period, the data sheets and objectives of the experimental group were processed in the computer while those of the control group were not. The experimental group received from the computer a print-out, or Resource Guide.

The control group received the "dump" or Resource Unit on "Transportation," as it was stored in the computer.

During a two-week planning period (1) each teacher kept a Time Log, a record of time spent on tasks associated with

the preparation of the unit; and (2) each teacher wrote an outline of the unit she had preplanned. Also, each teacher was observed four times by one of a group of seven observers. Two observations were made prior to the preplanning of the unit on "Transportation". Two more observations were made after the preplanning period, during the teaching of the unit.

The observers used an observation instrument devised by Hilliard Jason[3] and adapted for use in this study. Data were taken from the observation records, the Time Logs, and the written plans of teaching units submitted by each teacher.

ANALYSIS OF DATA:

Data were analyzed as follows:

1. Using data from the Time Logs, experimental and control groups were compared in regard to the time spent in preplanning. A t-test was made to compare the means of the groups.

2. Using scores obtained from the observation records. comparisons were made of pre and post observations by an analysis of covariance. A .05 confidence level was adopted.

3. Unit outlines were compared on the basis of their meeting seven criteria.

CONCLUSIONS:

The major conclusions are as follows:

1. Teachers using a Resource Guide require considerably more time to preplan a teaching unit than do teachers not using a Resource Guide.

2. Teachers using a Resource Guide spend more time in those tasks closely allied to the individualization of instruction than do teachers not using a Resource Guide.

3. The use of the Resource Guide significantly influences changes in teachers' instructional behavior in certain dimensions of teaching, and in relation to specific characteristics relevant to unit teaching.

4. Teachers using a Resource Guide exhibit clearer ability to construct a teaching unit than do teachers not using a Resource Guide.

5. Computer Assisted Planning can be utilized in curriculum planning.

6. Existing schedule patterns in the elementary school force teachers to do the greater share of their professional planning at home, during their own time.

Changes in Instructional Behavior of Teachers Who Use Computer Processed Materials Designed For The Individualization of Instruction[4]

PROBLEM:

Individual differences among pupils demand that ways be found which will provide opportunity for teachers to plan and provide learning experiences in accordance with these differences.

The purpose of this study was to seek answers to the following questions:

Does the use of Resource Guides cause a varied selection of teachers to more nearly individualize their instruction by (1) encouraging pupils to engage in independent thinking, (2) creating an accepting atmosphere in the classroom, (3) making appropriate selection and use of instructional materials, (4) making appropriate selection and use of teaching methods, (5) motivating pupils through challenge without threat, and (6) sensing the needs of individuals in the classroom?

PROCEDURE:

Nineteen high school social studies teachers and nineteen third grade teachers in eleven selected schools in Western New York were assigned to either an experimental or a control group.

Using Jason's Instruction Observation Record adapted for

use in public schools by Goldberg, a team of thirteen trained observers recorded pre and post-instructional behaviors for each of the teachers in the sample.

Each teacher was asked to complete data sheets describing relevant characteristics for each of his pupils, and select objectives he wished to achieve during the teaching of the selected unit. Approximately one week before the post-observations were made, the experimental group received a Computer Based Resource Guide.

ANALYSIS OF DATA:

Data were analyzed as follows:

1. The difference between the pre and post mean scores were observed for each of the seven scales on the observation instrument. A t-test was used to test for significance at the .05 level.

2. The differences of change in instructional behavior between the elementary teachers and the secondary teachers were analyzed.

3. The pre-post differences in variety and kind of instructional materials and teaching methods were examined.

THE FINDINGS:

1. In the experimental group composite behavior change

was significant at the .05 level and, independent instructional behaviors changed significantly on five out of the seven scales of the IOR.

2. In the control group composite behavior did not change significantly and independent instructional behaviors changed on only one of the seven scales.

3. Difference between gain scores of the experimental and control groups were found to be significant on six of the seven scales of the IOR.

4. The high school teachers' instructional behavior was affected more than that of the elementary teachers.

5. A wider range of instructional materials was used during the post observations and, a reduction in use of chalk-board and texts was evidenced.

7. The median number of student questions and comments moved from 6--10 on the pre-observation to 11--15 on the post.

CONCLUSIONS:

The following conclusions have been drawn within the limitations of the study.

1. There is a difference between the regular instructional behavior of a varied selection of teachers and the instructional behavior of the same teachers recorded at a time when they are following plans that were developed from Computer Based

Resource Guides.

2. Resource Guides significantly affect some dimensions of instructional behavior but fail to produce significant change in other dimensions. The significant changes in instructional behavior of teachers who use Resource Guides are changes that increase the number and improve the quality of the following individualized instruction tasks:

A. Encouraging pupils to engage in independent thinking,

B. Creating an accepting atmosphere in the classroom,

C. Making appropriate selection and use of instructional materials,

D. Making appropriate selection and use of teaching methods.

E. Motivating pupils through challenge without threat,

F. Employing a wider variety of instructional materials,

G. Using a greater number of individual and small group methods of teaching, and fewer large group methods,

H. Encouraging more pupil involvement and interaction.

3. Resource Guides fail to produce significant changes in teachers sensitivities to the needs of pupils or in their sensitivities to the effects of the physical setting.

In summary, Computer Assisted Planning can, in fact, produce positive changes in some aspects of teacher decision-making. While some teacher behaviors seem to remain unchanged, the implications for future analysis of the complex role of the teacher is clearly evident.

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